

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all listings of claims in the application.

LISTING OF CLAIMS

Please amend the Claims as follows:

1. (currently amended) A low dropout voltage regulator (LDO) comprising:
a regulating circuit having an input terminal, an output terminal, and a control terminal, said regulating circuit configured to receive an input signal at said input terminal and provide an output signal at said output terminal in response to a control signal received at said control terminal;
an amplifier having a first and second input terminal and an output terminal, said first input terminal coupled to a first input path, said output terminal of said amplifier coupled to said control terminal of said regulating circuit via a path to provide said control signal; and
a first compensating path coupled between a first node on said first input path and a first node on said path coupling said output terminal of said amplifier to said control terminal of said regulating circuit, said first compensating path comprising a first compensating capacitor; and
a second compensating path coupled between said output terminal of said regulating circuit and a second node on said path coupling said output terminal of said amplifier to said control terminal of said regulating circuit, said second compensating path comprising a second compensating capacitor.
2. (previously presented) The LDO of claim 1, wherein said first input path comprises a resistor.
3. (cancelled)

4. (cancelled)

5. (currently amended) The LDO of claim 4 2, wherein a feedback network is coupled between said output terminal of said regulating circuit and said second input terminal of said amplifier, wherein a second stage circuit comprises said regulating circuit and said feedback network, and wherein a first dominant pole is introduced in a frequency response plot of said LDO, said first dominant pole given by:

$$f_{p1} = \frac{1}{2\pi[R_s(1+A)C_1 + r_{o1}(1+B)C_2]}$$

where R_s is a value of said resistor, A is a voltage gain of said amplifier, C_1 is a value of said first compensating capacitor, r_{o1} is an output impedance of said amplifier, B is a voltage gain of said second stage circuit, and C_2 is a value of said second compensating capacitor.

6. (currently amended) The LDO of claim 4 2, wherein said first compensating capacitor and said resistor introduce a zero in a frequency response plot of said LDO, said zero given by:

$$f_{z1} = \frac{1}{2\pi R_s C_1}$$

where R_s is a value of said resistor and C_1 is a value of said first compensating capacitor.

7. (previously presented) The LDO of claim 1, wherein said regulating circuit comprised a MOSFET transistor, said input terminal of said regulating circuit comprising a source terminal of said MOSFET transistor, said output terminal of said regulating circuit comprising a drain terminal of said MOSFET transistor, and said control terminal of said regulating circuit comprising a gate terminal of said MOSFET transistor.

8. (currently amended) An integrated circuit comprising:
a load; and

at least one low dropout voltage regulator (LDO) for providing a regulated output voltage to said load, said at least one LDO comprising:

a regulating circuit having an input terminal, an output terminal, and a control terminal, said regulating circuit configured to receive an input signal at said input terminal and provide an output signal at said output terminal in response to a control signal received at said control terminal;

an amplifier having a first and second input terminal and an output terminal, said first input terminal coupled to a first input path, said output terminal of said amplifier coupled to said control terminal of said regulating circuit via a path to provide said control signal; and

a first compensating path coupled between a first node on said first input path and a first node on said path coupling said output terminal of said amplifier to said control terminal of said regulating circuit, said first compensating path comprising a first compensating capacitor; and

a second compensating path coupled between said output terminal of said regulating circuit and a second node on said path coupling said output terminal of said amplifier to said control terminal of said regulating circuit, said second compensating path comprising a second compensating capacitor.

9. (previously presented) The integrated circuit of claim 8, wherein said first input path comprised a resistor.

10. (cancelled)

11. (cancelled)

12. (currently amended) The integrated circuit of claim 11, wherein a feedback network is coupled between said output terminal of said regulating circuit and said second input terminal of said amplifier, wherein a second stage circuit comprises said regulating circuit and said

feedback network, and wherein a first dominant pole is introduced in a frequency response plot of said LDO, said first dominant pole given by:

$$f_{p1} = \frac{1}{2\pi[R_s(1+A)C_1 + r_{o1}(1+B)C_2]}$$

where R_s is a value of said resistor, A is a voltage gain of said amplifier, C_1 is a value of said first compensating capacitor, r_{o1} is an output impedance of said amplifier, B is a voltage gain of said second stage circuit, and C_2 is a value of said second compensating capacitor.

13. (currently amended) The integrated circuit of claim 11 9, wherein said first compensating capacitor and said resistor introduce a zero in a frequency response plot of said LDO, said zero given by:

$$f_{z1} = \frac{1}{2\pi R_s C_1}$$

where R_s is a value of said resistor and C_1 is a value of said first compensating capacitor.

14. (currently amended) An electronic device comprising:

an integrated circuit, said integrated circuit comprising at least one low dropout voltage regulator (LDO), for providing a regulated output voltage to a load of said integrated circuit, said at least one LDO comprising:

a regulating circuit having an input terminal, an output terminal, and a control terminal, said regulating circuit configured to receive an input signal at said input terminal and provide an output signal at said output terminal in response to a control signal received at said control terminal;

an amplifier having a first and second input terminal and an output terminal, said first input terminal coupled to a first input path, said output terminal of said amplifier coupled to said control terminal of said regulating circuit via a path to provide said control signal; and

a first compensating path coupled between a first node on said first input path and

a first node on said path coupling said output terminal of said amplifier to said control terminal of said regulating circuit, said first compensating path comprising a first compensating capacitor; and

a second compensating path coupled between said output terminal of said regulating circuit and a second node on said path coupling said output terminal of said amplifier to said control terminal of said regulating circuit, said second compensating path comprising a second compensating capacitor.

15. (previously presented) The electronic device of claim 14, wherein said first input path comprises a resistor.

16. (cancelled)

17. (cancelled)

18. (currently amended) The electronic device of claim 17 15, wherein a feedback network is coupled between said output terminal of said regulating circuit and said second input terminal of said amplifier, wherein a second stage circuit comprises said regulating circuit and said feedback network, and wherein a first dominant pole is introduced in a frequency response plot of said LDO, said first dominant pole given by:

$$f_{p1} = \frac{1}{2\pi[R_s(1+A)C_1 + r_{o1}(1+B)C_2]}$$

where R_s is a value of said resistor, A is a voltage gain of said amplifier, C_1 is a value of said first compensating capacitor, r_{o1} is an output impedance of said amplifier, B is a voltage gain of said second stage circuit, and C_2 is a value of said second compensating capacitor.

19. (currently amended) The electronic device of claim 17 15, wherein said first compensating capacitor and said resistor introduce a zero in a frequency response plot of said LDO, said zero given by:

$$f_{z1} = \frac{1}{2\pi R_s C_1}$$

where R_s is a value of said resistor and C_1 is a value of said first compensating capacitor.

20. (currently amended) A method of compensating a low ~~drop-out~~ dropout voltage (LDO) regulator comprising:

introducing a first dominant pole in a frequency response plot of said LDO;

introducing a second parasitic pole in said frequency response plot; and

introducing a first zero in said frequency response plot, said first zero resulting in a first phase shift that at least partially cancels with a second phase shift introduced by said second parasitic pole.

21. (previously presented) The method of claim 20, wherein said second parasitic pole occurs at a first frequency level and said first zero occurs at a second frequency level, said second frequency level less than said first frequency level.